

Abstract of the Disclosure:

A carbon nanotube is contacted with a reactive substance which is a metal or a semiconductor. The reactive substance is heated to diffuse atoms of the reactive substance into the carbon nanotube so that the carbon nanotube is partially transformed or converted into carbide as a reaction product. Thus, a heterojunction of the reaction product and the carbon nanotube is formed. For example, the carbon nanotube (2) is contacted with a silicon substrate (1). The silicon substrate (1) is heated to cause solid-solid diffusion of Si. As a result, SiC (3) is formed as the heterojunction. At least a part of a filament material of a carbon nanotube is irradiated with electromagnetic wave to deform the filament material.